

Strategies for Basic Facts

Strategies for Addition Facts:

- **One-More-Than and Two-More-Than Facts:** These *36 facts* are a direct application of the one-more-than and two-more-than relationships. Examples: $6 + 1 = 7$; $6 + 2 = 8$
- **Facts with Zero:** *Nineteen facts* have zero as one of the addends. Word problems involving zero will be especially helpful. In the discussion, use drawings that show two parts with one part empty. Examples: $7 + 0 = 7$; $0 + 5 = 5$
- **Doubles:** These *ten facts* are relatively easy to learn and become a powerful way to learn the near-doubles. Some children use them as anchors for other facts as well. Examples: $8 + 8 = 16$; $3 + 3 = 6$
- **Near Doubles:** Near-doubles are also called the “doubles-plus-one” facts and include all combinations where one addend is one more than the other (*18 facts*). The strategy is to double the smaller number and add 1. Examples: $8 + 9 =$ (Think $8 + 8$ is 16 and one more is 17); $7 + 6 =$ (Think $6 + 6$ is 12 and one more is 13)
- **Make-Ten Facts:** These facts (*30 facts*) all have at least one addend of 8 or 9. One strategy for these facts is to build onto the 8 or 9 up to 10 and then add on the rest. For $6 + 8$, start with 8, then 2 more makes 10, and that leaves 4 more for 14. Break one number apart to make a ten and then add on the other part. $9 + 5$; think $9 + 1$ is 10 ($5 = 1 + 4$); now 10 and 4 more is 14.
- **Doubles-Plus Two or Two-Apart Facts:** Some children find it easy to extend the idea of the near-doubles to double plus 2. For example, $4 + 6$ is double 4 and 2 more. A different idea is to take 1 from the larger addend and give it to the smaller. $5 + 3$ fact is transformed into the double 4 fact – *double the number in between*.
- **Make-Ten Extended:** Extending the Make-Ten strategy to facts including 7. For $7 + 4$, the idea is *7 and 3 more makes 10* and 1 more makes 11.
- **Ten-Frame Facts:** The ten frame model is so valuable in “seeing” certain number relationships that these ideas cannot be passed by in thinking about facts. The ten-frame helps children learn the combinations that make 10. Ten-frames immediately model all of the facts from $5 + 1$ to $5 + 5$ and the respective turnarounds. Even $5 + 6$, $5 + 7$, and $5 + 8$ are quickly seen as two fives and some more when using a ten-frame.

Strategies for Subtraction Facts:

- **Subtraction as Think-Addition:** Subtraction is modeled in such a way that students are encouraged to think, “What goes with this part to make the total?” The child uses known addition facts to produce the unknown quantity or part.
- **Build up Through 10:** Using 10 as a benchmark to find the difference between two numbers (when one of the numbers is 8 or 9). Example $13 - 9$; Think 9 and 1 more make 10, 10 and 3 more is 13 ($3 + 1 = 4$). The difference between 13 and 9 is 4. Another example $15 - 8$; think 8 and 2 will get me to 10, 10 and 5 more is 15 ($2 + 5 = 7$). The difference between 15 and 8 is 7. One more $14 - 8$; Think $8 + 2 = 10$; $10 + 4 = 14$ ($2 + 4 = 6$). The difference between 14 and 8 is 6. Students can be introduced to this strategy using a ten-frame to build the numbers and show building up to ten.

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Back down Through 10: Using 10 as a benchmark – subtract to get a ten – and then subtract remaining amount. Example: $15 - 6$; Think take 5 from 15 to get to 10 (thinking 5 and 1 more is 6) now take 1 more from 10 leaves 9. The difference between 15 and 6 is 9. Another example $14 - 7$; think take 4 from 14 to get to 10 (thinking 4 and 3 make 7) now take 3 more from 10 leaves 7. The difference between 14 and 7 is 7. One more example: $11 - 6$: Think take 1 from 11 to get to 10 (thinking 1 and 5 more is 6) now take 5 more from 10 leaves 5. Students can be introduced to this strategy using a ten-frame to build the numbers and show building down through ten. A double ten frame can be used to model this strategy.

Strategies for Multiplication Facts:

- **Five Facts:** Connect counting by fives with rows of 5 dots. Clock Facts – Focus on the minute hand of the clock. When the minute hand points to a number, how many minutes after the hour is it? (☺) Include the clock idea on flash cards.
- **Zeros and Ones:** *36 facts* – The concepts behind these facts can be developed best through story problems. Avoid rules that sound arbitrary and without reason such as “Any number multiplied by zero is zero.”
- **Nifty Nines:** The table of nines facts includes some nice patterns that are *fun to discover*. Two of these are useful for mastering the nines: (1) The tens digit of the product is always one less than the “other” factor (the one other than 9); (2) The sum of the two digits in the product is always 9. These two ideas can be used together to get any nine fact quickly. For 7×9 , 1 less than 7 is 6, 6 and 3 make 9, so the answer is 63. An activity can be used to help students “see” these patterns. Students study a column with the 9’s facts listed one below the other and discuss patterns they notice.
- **Double and Double Again:** This is a strategy for the 4 facts. (4 is double 2) Example 4×6 ; Think double 6 is 12 – double 12 is 24, so $4 \times 6 = 24$; 7×4 ; Think double 7 is 14 – double 14 is 28, so $7 \times 4 = 28$. For 4×8 , double 16 is a difficult fact for some children. Help children with this by noting, for example, that $15 + 15$ is 30, $16 + 16$ is two more, or 32.
- **Double and One More Set:** A strategy for the 3’s. 3×7 , think double 7 is fourteen and then one more set of 7 is 21. 3×6 , think double 6 is 12 and then one more set of 6 is 18.
- **Half then Double:** A strategy if either factor is even. For 6×7 , half of 6 is 3. 3×7 is 21; double 21 is 42. Example: 4×6 , half of 4 is 2. 2×6 is 12; double 12 is 24
- **Helping Facts:** Use known facts to help solve unknown facts i.e. he does not know 6×7 but does know 5×7 is 35. He uses the 5 fact and then adds one more set of 7. $35 + 7 = 42$; so $6 \times 7 = 42$

Strategies for Division Facts:

- **Think Multiplication:** When solving basic division facts most students (and adults☺) use Think Multiplication – Example: $48 \div 6$, we think 6×8 is 48; so $48 \div 6 = 8$; $36 \div 9$, we think $9 \times 4 = 36$; so $36 \div 9 = 4$